

REMARKS

Claims 1-14 were pending in the present application. This response amends Claims 1 and 10. Accordingly, claims 1-14 are currently under consideration. Amendment of certain of the claims is not to be construed as a dedication to the public of any of the subject matter of the claims as previously presented.

The amendments to Claims 1 and 10 are fully supported by the original specification. Therefore, no new matter is added.

Rejections under 35 U.S.C. § 103(a)

The Office has rejected Claims 1, 2 and 4 as allegedly being unpatentable over Kawahara et al. (US '551 B1) in view of Lee et al. (US 20002/0000915 A1).

Claim 1, as amended, distinguishes over the combination of Kawahara et al. (US '551 B1) and Lee et al. at least by reciting a liquid crystal display (LCD) and fingerprint capture panel comprising:

an LCD part and a light-sensing fingerprint capture sensor arranged on the same plane, the LCD part and the light-sensing fingerprint capture sensor being simultaneously arranged through the same manufacturing process....
(emphasis added)

The Examiner states that

Kawahara has an LCD part and a fingerprint capture sensor arranged on the same plane (Figure 1, for example), the LCD part and the fingerprint capture sensor being simultaneously arranged through the same manufacturing process.... (Office Action, section 1)

The fingerprint capture sensor disclosed by Kawahara et al. (US '551 B1) is not a "light-sensing fingerprint capture sensor" as recited in Claim 1, as amended, however. Instead, Kawahara et al. (US '551 B1) discloses an electrostatic capacity type fingerprint reading sensor. (Kawahara et al. (US '551 B1), column 1 lines 6-7, column 5 lines 6-17, and column 6 line 14) One of ordinary skill in the art would recognize that the structure and the operating principles of a "light-sensing fingerprint capture sensor" differ from those of electrostatic capacity type fingerprint reading sensors. Hence, Kawahara et al. (US '551 B1) neither teaches nor suggests

“the LCD part and the light-sensing fingerprint capture sensor being simultaneously arranged through the same manufacturing process” as recited in Claim 1, as amended.

The invention of Lee et al. relates “to a thin film transistor type fingerprint sensor that is capable of minimizing an insulation breakage between thin film transistor lines.” (Lee et al., paragraph 3) Though Lee et al. discloses a light-sensing fingerprint sensor, Lee et al. does not teach or suggest that the fingerprint sensor it discloses can be simultaneously arranged on the same plane with an LCD through the same manufacturing process. Kawahara et al. (US ‘551) does not teach or suggest that the fingerprint sensor of Lee et al., or any other light-sensing fingerprint sensor, can be substituted for the electrostatic capacity type fingerprint sensor disclosed in Kawahara et al. (US ‘551) and simultaneously arranged on the same plane with an LCD through the same manufacturing process. Consequently, neither Kawahara et al. (US ‘551 B1), nor Lee et al., nor their combination teaches or suggests “the LCD part and the light-sensing fingerprint capture sensor being simultaneously arranged through the same manufacturing process” as recited in Claim 1, as amended.

In addition, as the Examiner recognized (Office Action, section 1), Kawahara et al. (US ‘551 B1) does not teach or suggest “a backlight commonly used for the LCD part and the fingerprint capture sensor as a light source” as recited in Claim 1, as amended. The Examiner states that

[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kawahara in view of Lee to include a backlight as a light source for the LCD and fingerprint sensor to apply light to a fingerprint and LCD. (Office Action, section 1)

One of ordinary skill in the art would have no motivation to make the suggested combination, however, because the electrostatic capacity detector utilized in the invention of Kawahara et al. (US ‘551 B1) does not operate by detecting light and thus does not require a backlight.

Independent Claim 1, as amended, is patentable over the combination of Kawahara et al. (US ‘551 B1) and Lee et al. at least for the above reasons. Claims 2 and 4, directly dependent on

Claim 1, are patentable over the combination of Kawahara et al. (US '551 B1) and Lee et al. at least for the reasons for which Claim 1, as amended, is patentable over this combination.

The Office has rejected Claim 3 as allegedly being unpatentable over Kawahara et al. (US '551 B1) in view of Lee et al. (US 20002/0000915 A1) in further view of Kawahara et al. (US '563 B1). Kawahara et al. (US '563 B1) does not remedy the deficiencies of Kawahara et al. (US '551 B1) and Lee et al. insofar as the patentability of independent Claim 1, as amended, is concerned. Claim 3, directly dependent on Claim 1, is patentable over the combination of Kawahara et al. (US '551 B1), Lee et al., and Kawahara et al. (US '563 B1) for at least the reasons for which Claim 1, as amended, is patentable over this combination.

The Office has rejected claims 5, 7 and 9 as allegedly being unpatentable over Kawahara et al. (US '551 B1) in view of Lee et al. (US 2002/0000915 A1) in further view of Kurihara et al. (US '529 B1).

Independent Claim 5 distinguishes over the combination of Kawahara et al. (US '551 B1), Lee et al., and Kurihara et al. at least by reciting

a thin film transistor(TFT) panel attached to a top of the backlight, the TFT panel including an LCD part formed in a region of the TFT panel and a fingerprint capture part formed in the remaining region of the TFT panel.

The Examiner recognizes that “Kawahara does not appear to have a backlight and TFT panel attached to a top of the backlight.” (Office Action, section 3) The Examiner alleges, however, that “Lee has a backlight and a TFT panel attached to a top of the backlight.” (Office Action, section 3) The Examiner’s assertion is incorrect. None of the figures in Lee et al. show a “TFT panel attached to a top of the backlight.” No such structure is anywhere disclosed in Lee et al. Lee et al.’s Figures 1, 4, and 8A (cited by the Examiner), for example, all show backlight 8 clearly detached and separated from substrate 18 and the rest of the disclosed device. Kurihara et al. does not disclose a fingerprint sensor and consequently cannot remedy the deficiencies of Lee et al.

In addition, in the devices disclosed by Kawahara et al. (US '551 B1) (see Figures 2, 5A and 5B, for example) polarizer 31 is detached and separated from substrate 21. One of ordinary skill in the art would recognize that any backlight used in combination with the devices disclosed in Kawahara et al. (US '551 B1) would most logically be positioned on the opposite side of polarizer 31 from substrate 21 in order to use polarizer 31 to produce polarized light as apparently intended. Such a backlight would thus also be detached and separated from substrate 21 and from any TFT included in LCD 11 or fingerprint sensor 12 positioned on substrate 21. Consequently, one of ordinary skill in the art would not be motivated to modify the devices disclosed by Kawahara et al. (US '551 B1) to provide the invention of Claim 5.

Independent Claim 5 is patentable over the combination of Kawahara et al. (US '551 B1), Lee et al., and Kurihara et al. at least for the above reasons. Claims 7 and 9, directly dependent on claim 5, are patentable over the combination of Kawahara et al. (US '551 B1), Lee et al., and Kurihara et al. at least for the reasons for which Claim 5 is patentable over this combination.

The Office has rejected claim 6 as allegedly being unpatentable over Kawahara et al. (US '551 B1) in view of Lee et al. (US 2002/0000915 A1) in further view of Kurihara et al. (US '529 B1) in further view of Lan (WO 01/69520 A2). Lan does not remedy the deficiencies of Kawahara et al. (US '551 B1), Lee et al., and Kurihara et al. insofar as the patentability of Claim 5 is concerned. Claim 6, directly dependent on Claim 5, is patentable over the combination of Kawahara et al. (US '551 B1), Lee et al., Kurihara et al., and Lan at least for the reasons for which Claim 5 is patentable over this combination.

The Office has rejected claim 8 as allegedly being unpatentable over Kawahara et al. (US '551 B1) in view of Lee et al. (US 2002/0000915 A1) in further view of Kurihara et al. (US '529 B1) in further view of Kawahara et al. (US '563 B1). Kawahara et al. (US '563 B1) does not remedy the deficiencies of Kawahara et al. (US '551 B1), Lee et al., and Kurihara et al. insofar as the patentability of Claim 5 is concerned. Claim 8, directly dependent on Claim 5, is

patentable over the combination of Kawahara et al. (US '551 B1), Lee et al., Kurihara et al. and Kawahara et al. (US '563 B1) for at least the reasons for which Claim 5 is patentable over this combination.

The Office has rejected claims 10-12 and 14 as allegedly being unpatentable over Kawahara et al. (US '551 B1) in view of Lee et al. (US 2002/0000815 A1) in further view of Lan (WO 01/69520 A2).

Claim 10, as amended, distinguishes over the combination of Kawahara et al. (US '551 B1), Lee et al., and Lan at least by reciting “a thin film transistor(TFT) panel attached to a top of the backlight and including an LCD part formed in a region of the TFT panel.” As explained above in the discussion of Claims 5 and 6, the combination of Kawahara et al. (US '551 B1), Lee et al., and Lan neither teach, suggest, nor motivate this combination of elements.

Claim 10, as amended, also distinguishes over the cited combination of references by reciting

a color filter attached to a top of the liquid crystal element and extended to cover a region in which the LCD part is not formed; and
a fingerprint capture part formed on a region of the color filter covering the region in which the LCD part is not formed.

The Examiner recognizes that Kawahara et al. (US '551 B1) does not teach or suggest this combination of elements. (Office Action, section 6) The Examiner alleges, however, that “Lan has these limitations (Page 61, Lines 16-22).” (Office Action, section 6) This assertion is incorrect. The cited portion of Lan and the accompanying Figures 43A describe a fingerprint sensor 330 in which a color filter 385 is attached to the top of a sensor layer 379 and thus located between sensor layer 379 and fingertip 40. The purpose of Lan’s color filter 385 is “to selectively permit light of a particular color or wavelength to enter the fingerprint sensor 330”and “to improve the illumination of fingertip 40.” (Lan, page 61 line 19-22). In contrast to the device described in Lan, Claim 10, as amended, recites “a fingerprint capture part formed on a region of the color filter covering the region in which the LCD part is not formed.” In the

invention of Claim 10, the fingerprint capture part is located above the color filter and thus located between the color filter and a fingerprint to be sensed. Hence, the structure disclosed by Lan is very different from that claimed in Claim 10, as amended.

Furthermore, one of ordinary skill in the art would not be motivated by Lan to modify the devices disclosed in Kawahara et al. (US '551 B1) to provide the invention of Claim 10, as amended, because the fingerprint sensors used in the devices of Kawahara et al. (US '551 B1) do not detect light. The purpose of the color filter in Lan's device is thus not relevant to the function of the fingerprint sensors in Kawahara et al. (US '551 B1).

Independent Claim 10, as amended, is patentable over the combination of Kawahara et al. (US '551 B1), Lee et al., and Lan at least for the above reasons. Claims 11, 12, and 14, directly dependent on Claim 10, are patentable over the combination of Kawahara et al. (US '551 B1), Lee et al., and Lan at least for the reasons for which Claim 10, as amended, is patentable over this combination.

The Office has rejected Claim 13 as allegedly being unpatentable over Kawahara et al. (US '551 B1) in view of Lee et al. (US 2002/0000915 A1) in further view of Lan (WO 01/69520 A2) in further view of Kawahara et al. (US '563B1). Kawahara et al. (US '563B1) does not remedy the deficiencies of Kawahara et al. (US '551 B1), Lee et al., and Lan insofar as the patentability of independent Claim 10, as amended, is concerned. Claim 13, directly dependent on Claim 10, is patentable over the combination of Kawahara et al. (US '551 B1), Lee et al., Lan, and Kawahara et al. (US '563B1) for at least the reasons for which Claim 10, as amended, is patentable over this combination.

CONCLUSION


Applicants have, by way of the amendments and remarks presented herein addressed all issues that were raised in the outstanding Office Action. Applicants respectfully contend that this Amendment has overcome the rejections and that the pending claims are in condition for allowance. If it is determined that a telephone conversation would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, Applicants petition for any required relief including extensions of time and authorizes the Assistant Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 404302000800.

Respectfully submitted,

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